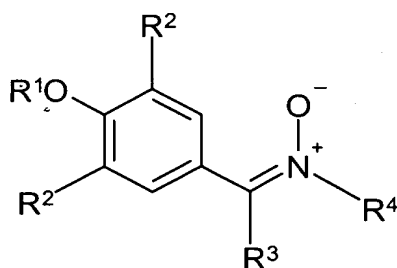


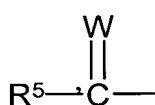
WHAT IS CLAIMED IS:

1. A method for treating neuropathic pain in a patient comprising administering an effective neuropathic pain-treating dose of a pharmaceutical composition comprising a compound of formula I:

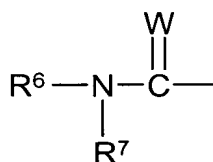


wherein

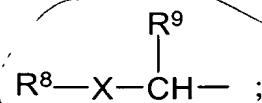
R^1 is selected from the group consisting of hydrogen, alkyl



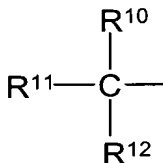
,



and



each R^2 is independently selected from a group of the formula:



R^3 is selected from the group consisting of hydrogen, alkyl, cycloalkyl and aryl;

R⁴ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁵ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁶ and R⁷ are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R⁶ and R⁷ can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R⁸ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁹ is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R⁸ and R⁹ can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R¹⁰ is selected from the group consisting of hydrogen, lower alkyl and lower cycloalkyl; or R¹ and R¹⁰ can be joined to form an alkylene, substituted alkylene, -C(O)- -S(O)- or -S(O)₂- group;

R¹¹ and R¹² are independently selected from the group consisting of lower alkyl and lower cycloalkyl; or R¹¹ and R¹² can be joined to form an alkylene group having from 2 to 10 carbon atoms;

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X is oxygen, sulfur, -S(O)- or -S(O)₂-; and

W is oxygen or sulfur; and pharmaceutically-acceptable salts thereof.

2. The method of Claim 1 wherein W is oxygen.
3. The method of Claim 2 wherein R³ is hydrogen or lower alkyl.
4. The method of Claim 3 wherein R³ is hydrogen.
5. The method of Claim 4 wherein R⁴ is selected from the group consisting of alkyl, substituted alkyl and cycloalkyl.
6. The method of Claim 5 wherein R⁴ is selected from the group consisting of methyl, *n*-propyl, isopropyl, 1-hydroxy-2-methylprop-2-yl, *n*-butyl, *tert*-butyl, 3-thiomethylpropyl, 3-(thiomethoxy)but-1-yl, cyclohexyl, 4-trifluoromethylbenzyl and 3,4,5-trimethoxybenzyl.
7. The method of Claim 4 wherein R⁵ is selected from the group consisting of alkyl and cycloalkyl.
8. The method of Claim 7 wherein R⁵ is selected from the group consisting of methyl, ethyl, *n*-propyl, isopropyl and *n*-butyl.
9. The method of Claim 4 wherein R⁷ is hydrogen and R⁶ is selected from the group consisting of alkyl and alkoxycarbonylalkyl.
10. The method of Claim 9 wherein R⁶ groups is selected from the group consisting of ethyl, *n*-propyl, isopropyl, *n*-butyl, ethoxycarbonylmethyl and 2-(ethoxycarbonyl)ethyl.

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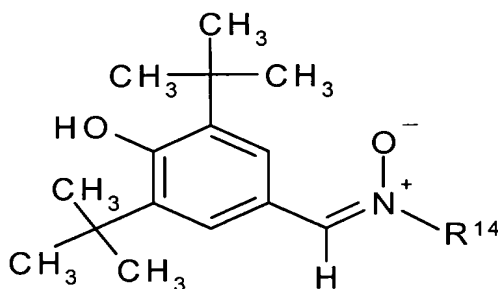
11. The method of Claim 4 wherein X is oxygen; R⁹ is hydrogen; and R⁸ is alkyl or alkoxyalkyl.

12. The method of Claim 11 wherein R⁸ is selected from the group consisting of methyl and methoxyethyl.

13. The method of Claim 4 wherein R¹⁰, R¹¹ and R¹² are independently lower alkyl.

14. The of Claim 13 wherein R¹⁰, R¹¹ and R¹² are methyl.

15. The method of Claim 1 wherein the compound is of formula IA:



IA

wherein

R¹⁴ is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl.

16. The method of Claim 15 wherein R¹⁴ is an alkyl of from 3 to 8 carbon atoms.

17. The method of Claim 16 wherein R¹⁴ is *tert*-butyl.

18. The method of Claim 16 wherein R¹⁴ is *tert*-octyl.

- _____

[illegible][illegible]

Table 1

Year	Population	GDP	Urbanization	Life expectancy	Fertility rate	Mortality rate	Healthcare expenditure	Education expenditure	Government expenditure
1960	1.2 billion	\$180 billion	15%	47 years	6.5 children/woman	15 per 1,000 live births	\$1.5 billion	\$2.5 billion	\$10 billion
1970	1.5 billion	\$350 billion	20%	50 years	5.5 children/woman	12 per 1,000 live births	\$2.5 billion	\$4 billion	\$15 billion
1980	1.8 billion	\$650 billion	25%	53 years	4.5 children/woman	10 per 1,000 live births	\$4 billion	\$6 billion	\$20 billion
1990	2.1 billion	\$1.2 trillion	30%	56 years	3.5 children/woman	8 per 1,000 live births	\$6 billion	\$9 billion	\$25 billion
2000	2.4 billion	\$2.2 trillion	35%	59 years	2.5 children/woman	6 per 1,000 live births	\$10 billion	\$12 billion	\$30 billion
2010	2.7 billion	\$4.5 trillion	45%	62 years	2.0 children/woman	5 per 1,000 live births	\$15 billion	\$18 billion	\$35 billion
2020	2.9 billion	\$7.5 trillion	55%	65 years	1.5 children/woman	4 per 1,000 live births	\$20 billion	\$22 billion	\$40 billion

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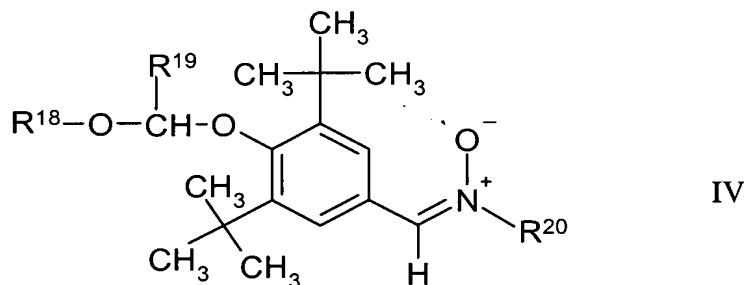
wherein

R^{15} and R^{16} are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl; or R^{15} and R^{16} can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R^{17} is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl; and pharmaceutically-acceptable salts thereof.

22. The method of Claim 21 wherein R^{16} is hydrogen and R^{15} is selected from the group consisting of alkyl and alkoxyalkyl.

23. The method of Claim 1 wherein the compound is of formula IV:



wherein

R^{18} is selected from the group consisting of alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl;

R^{19} is selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl and substituted cycloalkyl; or R^{18} and R^{19} can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R^{20} is selected from the group consisting of alkyl, substituted alkyl,

cycloalkyl and substituted cycloalkyl; and pharmaceutically-acceptable salts thereof.

24. The method of Claim 23 wherein R^{19} is hydrogen and R^{18} is alkyl or alkoxyalkyl.

25. The method of Claim 24 wherein R^{18} is methyl or methoxyethyl.

26. The method of Claim 23 wherein R^{20} is selected from the group consisting of alkyl, substituted alkyl and cycloalkyl.

27. The method of Claim 26 wherein R^{20} is selected from the group consisting of methyl, *n*-propyl, isopropyl, 1-hydroxy-2-methylprop-2-yl, *n*-butyl, *tert*-butyl, 3-thiomethylpropyl, 3-(thiomethoxy)but-1-yl, cyclohexyl, 4-trifluoromethylbenzyl and 3,4,5-trimethoxybenzyl.

28. The method of Claim 1 wherein the compound is selected from the group consisting of:

α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

α -(4-isobutanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

α -(4-*n*-butanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-isopropylnitrone

α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-1-hydroxy-2-methylprop-2-yl
nitrone

α -(4-*n*-pentanoyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-4-trifluoromethylbenzyl
nitrone

α -(4-propionyloxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone

α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-methylnitrone

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α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-3,4,5-trimethoxybenzyl nitrone

α -[4-(ethylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -[4-(*n*-propylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -[4-(*n*-butylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -[4-(2-ethoxycarbonyl)ethylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -[4-(2-ethoxycarbonyl)methylaminocarbonyloxy)-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butyl nitrone

α -[4-(2-methoxy)ethoxymethoxy-3,5-di-*tert*-butylphenyl]-*N-tert*-butyl nitrone

α -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N*-3-(thiomethoxy)but-1-yl nitrone

α -(4-methoxymethoxy-3,5-di-*tert*-butylphenyl)-*N*-3-thiomethoxypropyl nitrone

α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butyl nitrone

α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-octyl nitrone

α -(4-hydroxy-3,5-dimethoxyphenyl)-*N-tert*-butyl nitrone

α -(4-hydroxy-3,5-dimethylphenyl)-*N*-hexyl nitrone

α -(4-hydroxy-3,5-dimethylphenyl)-*N-tert*-butyl nitrone

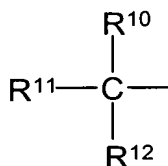
α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1,1-dimethyl-2-hydroxyethyl) nitrone

α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1,1-dimethylpropyl) nitrone

α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-(1-methylethyl) nitrone

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each R² is independently selected from a group of the formula:



R³ is selected from the group consisting of hydrogen, alkyl, cycloalkyl and aryl;

R⁴ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁵ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁶ and R⁷ are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R⁶ and R⁷ can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R⁸ is selected from the group consisting of alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl;

R⁹ is selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl,

α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-benzylnitron

α -(4-methoxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

and pharmaceutically acceptable salts thereof.

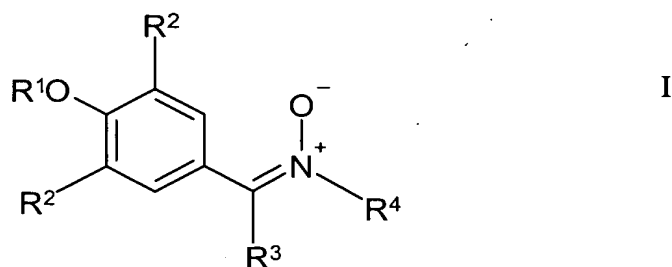
29. The method of Claim 1 wherein the compound is α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

30. The method of Claim 1 wherein the compound is α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-octylnitron

31. The method of Claim 1 wherein the compound is α -(4-acetoxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-octylnitron

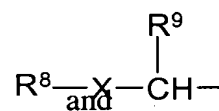
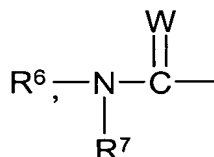
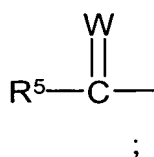
32. The method of Claim 1 wherein the compound is α -(4-*n*-butanoyloxy-3,5-di-*tert*-butylphenyl)-*N*-*tert*-butylnitron

33. A pharmaceutical composition for the treatment of neuropathic pain comprising a pharmaceutically acceptable carrier and a pharmaceutically effective neuropathic pain-treating amount of a compound of formula I:



wherein

R^1 is selected from the group consisting of hydrogen:



substituted cycloalkyl, cycloalkenyl and substituted cycloalkenyl; or R⁸ and R⁹ can be joined to form an alkylene or substituted alkylene group having from 2 to 10 carbon atoms;

R¹⁰ is selected from the group consisting of hydrogen, lower alkyl and lower cycloalkyl; or R¹ and R¹⁰ can be joined to form an alkylene, substituted alkylene, -C(O)- -S(O)- or -S(O)₂- group;

R¹¹ and R¹² are independently selected from the group consisting of lower alkyl and lower cycloalkyl; or R¹¹ and R¹² can be joined to form an alkylene group having from 2 to 10 carbon atoms;

X is oxygen, sulfur, -S(O)- or -S(O)₂-; and

W is oxygen or sulfur; and pharmaceutically-acceptable salts thereof.

34. The pharmaceutical composition of Claim 33 wherein the compound is α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-butylnitrone.

35. The pharmaceutical composition of Claim 33 wherein the compound is α -(4-hydroxy-3,5-di-*tert*-butylphenyl)-*N-tert*-octylnitrone.

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